



**(19) World Intellectual Property Organization  
International Bureau**

**(43) International Publication Date**  
**18 January 2001 (18.01.2001)**

**(10) International Publication Number**  
**WO 01/04838 A1**



IT, LU, MC, NL, PT, SE). OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

**Published:** — *With international search report.*

(51) International Patent Classification:	G06T 11/00	(71) Applicant (for IN only): HINDUSTAN LEVER LIMITED (IN/IN); Hindustan Lever House, 16/166 Backbay Reclamation, Mumbai 400 020, Maharashtra (IN).
(21) International Application Number:	PCT/EP2000/03407	

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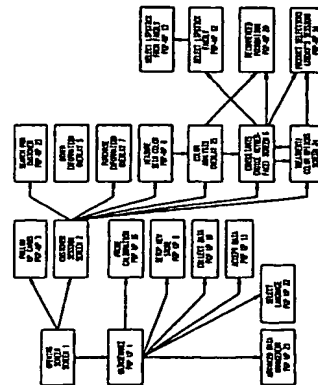
(30) Priority Data:  
60/142,600  
7 July 1999 (07.07.1999)  
US (81) Designated States (*nationality*): AE AI AM AT AU AZ

601/42,600	7 July 1999 (07.07.1999)	US	(81)	Designated States ( <i>national</i> ): AE, AL, AM, AT, AU, AZ, BA, BE, BF, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, FG, GD, GE, GM, GR, HU, ID, IL, IN, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NZ, PL, PT, RO, RU, SD, SE, SG, SK, SL, ST, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW
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[Confirmed on next page]

**(54) Title: A SYSTEM FOR COLOUR COSMETIC SELECTION**



(57) **Abstract:** A method and system is provided for selecting a facial colour cosmetic scheme. Apparatus employed for the system includes a computer module with a colour monitor screen, a spectrophotometer for measuring a customer's skin colour and a device for transferring the measured colour information from the spectrophotometer to the computer module for entry into a program allowing visualisation of a model face with skin colour matched to that of the customer. The method includes measuring via a spectrophotometer a customer's facial colour, transmitting information on that colour to the module for display on the model face appearing in the monitor, allowing the customer to select at least one colour for an area of the face to be covered by a cosmetic product, and then displaying the visualised model face with the selected colour. The system and method allow a customer to visualise the colour combination without the necessity of using the actual colour cosmetic on their own face for evaluation purposes.

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## A SYSTEM FOR COLOUR COSMETIC SELECTION

Field of the Invention

5 The present invention relates to a method and implementing apparatus for assisting a customer in selecting colour cosmetic products.

10 BACKGROUND OF THE INVENTION & PRIOR ART

Colour cosmetics are highly personal to an individual. An optimum shade is selected having relevance to a customer's skin coloration and to a colour fancied by the customer.

15 Assistance in the selection of an optimal colour shade is available to help the consumer. Clinique and Clarion have installed computers at sales counters for use by customers. Information on colour, shade, oiliness and other properties of a customer's skin are punched into the computer which then determines the company's most closely matching product. Two major companies, Prescriptives (Division of Estee Lauder) and Visage (Division of Revlon) have for some time practiced a manual system for evaluating a subject's skin colour. The sales person is trained through the use of match cards to identify a user's matching skin foundation. Unfortunately manual systems suffer from poor reproducibility. Extensive training must also be invested in a sales person.

20 25 30 German patent 41 10 299 C1 (Erdtmann) discloses the use of a facial sensor for reading skin property values and then utilising the measured values in selecting an optimum skin product. Subsequently, the information is sent to an automatic cosmetic

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dispensing system for blending selected additives to formulate the selected product.

5 U.S. Patent 5,622,692 (Rigg et al.) reports a system for customising a facial foundation product at point of sale to a customer. Three essential elements are present. They include a skin analyser for reading skin properties, a programmable device receiving the reading and correlating it with an optimal formula and a formulation machine for preparing the facial foundation product from various cosmetic chemical compositions. Technology described in this patent has commercially been embodied in Elizabeth Arden's Custom Colour system available for many years in major department stores.

15 Arden's system has been a significant advance in the art. However, it suffers from certain deficiencies, including the inability of customers to evaluate different colour cosmetics in the context of their own skin colouration, and in juxtaposition to combinations of different facial makeover products. Thus it would be desirable to have visualised a lipstick and a foundation, eye shadow and/or blush on a colour interactive basis. Especially desirable would be to evaluate the interaction of the various colour cosmetics without actually having to place these on one's own face.

20 25 30 Accordingly, it is an advantage of the present invention to provide a system and apparatus for selecting a facial colour cosmetic scheme from a palette of different shades and makeup products without requiring the actual placement of these products on the customer's face.

Another advantage of the present invention is to provide a system and apparatus for selecting a facial colour cosmetic scheme allowing rapid visualisation of different coloured makeup

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permutations on various areas of the face in a simultaneous manner.

#### SUMMARY OF THE INVENTION

The present invention provides a method for selecting a facial cosmetic colour scheme, the method including:

- (i) providing a computer module including a color monitor screen and a spectrophotometer;
- (ii) measuring a customer's facial colour with the spectrophotometer;
- (iii) transmitting information on the measured facial colour to the computer module for display of that colour on a model face generated on the monitor screen;
- (iv) allowing the customer to select at least one area of the face to be coloured with a colour cosmetic product; and
- (v) colouring the area of the model face with the selected colour.

Optionally, a further step may be added involving printing on paper the coloured display from step (v) appearing on the monitor. By this method, a customer can select eye shadow, eye liner, lipstick, lip liner, blush, foundation and/or powder with selected colours, at least some of the combination having been first evaluated on a model face generated on the computer monitor screen. A program controlling the colour and selection scheme can further be included to correlate a vendor's products which will achieve the selected colour palette.

According to a further aspect, the present invention provides a system for selecting a facial colour cosmetic scheme, the system including:

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- (i) a computer module connected with a colour monitor screen;
- (ii) a spectrophotometer for measuring skin colour;
- (iii) a mechanism for transfer of facial colour data obtained from measurements with the spectrophotometer over to the computer module and transmission onto the monitor screen; and
- (iv) an interactive program displayed on the monitor allowing the customer to select at least one colour for application to an area of a model face appearing on the monitor.

#### BRIEF DESCRIPTION OF THE DRAWINGS

The various objects, features and advantages of the present invention will become more readily apparent from consideration of the following drawing in which:

Fig. 1 shows a flow chart diagramming a program used in the system of the invention for selecting facial colour cosmetic schemes;

Fig. 2 shows Screen 2 of the program;

Fig. 3 shows Pop-Up Screen 3 of the program;

Fig. 4 shows Pop-Up Screen 4 of the program;

Fig. 5 shows Overlay 5 of the program;

Fig. 6 shows Screen 6 of the program;

Fig. 7 shows Overlay 7 of the program;

Fig. 8 shows Pop-Up Screen 8 of the program;

Fig. 9 shows Pop-Up Screen 9 of the program;

Fig. 10 shows Pop-Up Screen 10 of the program;

Fig. 11 shows Pop-Up Screen 11 of the program;

Fig. 12 shows Pop-Up Screen 12 of the program;

Fig. 13 shows Pop-Up Screen 13 of the program;

Fig. 14 shows Pop-Up Screen 14 of the program;

Fig. 15 shows Overlay Screen 15 of the program;

Fig. 16 shows Pop-Up Screen 16 through 19 of the program;

Fig. 17 shows Pop-Up Screen 20 of the program;

Fig. 18 shows Pop-Up Screen 21 of the program;

Fig. 19 shows Pop-Up Screen 22 of the program;

Fig. 20 shows Pop-Up Screen 23 of the program;

Fig. 21 shows Screen 24 of the program;

Fig. 22 shows Overlay 25 of the program; and

Fig. 23 shows a printout of a stylised model face provided as a printout from the method according to the present invention including recommendation for various different types of colour cosmetics.

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# DETAILED DESCRIPTION OF THE INVENTION

5 Now it has been found that a customer can evaluate how different colour cosmetics can interact by first visualising different colours on different areas of the face through computerised painting of a model face upon a monitor screen. In this system a customer is allowed to select colours to be placed on different areas of the model face. A reiterative procedure then occurs. This involves the customer selecting a colour, having the program paint the selected colour onto the stylised model face and then allowing the customer to evaluate the result. No longer must a customer actually try the product on his or her own face. A very rapid and clean evaluation can occur through use of the visualised model face.

15

A customer's actual facial colour can be measured by a spectrophotometer/colorimeter of a type having a visible light source, such as light emitting diodes (LED), xenon-arc, tungsten-halogen and similar type in the wavelength range of 400-900 nm. The visible light source may form the sensor portion of the spectrophotometer/colorimeter. Both visible and infrared wavelength light may be utilised in connection with the sensor portion. Suitable skin analysers are commercially available from Minolta Camera Co. Ltd., Japan and from Colortec Associates. Actual skin colour normally is measured around neckline areas which are free of a customer's foundation or other cover-up cosmetics.

20

Measurement starts by cleaning the areas preparatory to a reading. The spectrophotometer/colorimeter is then placed in proximity to the cleaned facial area. Visible light emitted in the 400-900 nm range by the device will be reflected off the skin surface and the

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reflective wavelength measured. It is recommended that at least five skin readings along the neck/jaw line region be taken. Total time for the reading requires approximately 30 seconds. A cable connecting the spectrophotometer/colorimeter to the computer module transmits the measured information on L, a and b thereby inputting a customer's natural skin colour parameters into the database. Alternatively the measured values can be read by the measuring consultant directly off of the spectrophotometer/colorimeter and manually banked into the computer module by typing the information on a linked keyboard.

By the term "computer module" is meant any programmable device capable of processing information. Normally these are personal computers.

15

Fig. 1 is a flow chart of a program according to one embodiment of this invention. After the opening screen, a user is introduced to Screen 2 known as the 'customer session'. Client information is obtained via this screen through either a swipe card, entry via a keyboard or from a database. The screen remains active (buttons are available) when overlays are displayed. Fig. 1 provides a view of Screen 2.

A Pop-up Screen 3 next appears with comments and client information to prompt follow-up calls. This screen can be used for contacting the client to remind them to visit the store when their cosmetic supply may be low. Fig. 3 illustrates the screen.

Pop-up Screen 4 covering 'Maintenance' is then available for appearance. This pop-up screen has options for calibration and data handling. Fig. 4 sets forth the screen.

Other information is collected with Overlay Screen 5. The Overlay screen selects/changes information about skin, beauty habits, type

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and brand of products used. Overlay Screens 2 and the buttons on Screen 2 remain active. Fig. 5 describes Overlay Screen 5.

Screen 6 provides a 'Consultant's Choice'. This screen shows effects of colour palette, using client's skin colour. Information on the client's skin colour is obtained through application of a hand-held spectrophotometer against areas of the face not likely to be covered by makeup. These areas include the neck and under chin areas. The cosmetic 'look' can either be based on skin colour (skin recommendation), lipstick colour (colour family), or a specific look. Depending on selections, a list of typically five 'looks' is created, and selecting (another look) displays next look in the series. Fig. 6 sets forth Screen 6.

15

Purchase information is achieved in Overlay Screen 7. This screen with previous and current purchase information (overlay to screen 2) is ordered by visit date. It contains information from up to the last five visits. Purchase information includes number, product type, product name and product number. Fig. 7 sets forth the purchase information screen.

Pop-up Screen 8 measures skin colour. It consists of a series of screens to assist an adviser with colour measurement. This session is repeated three times. Fig. 8 depicts the Pop-up Screen 8.

Pop-up Screen 9 serves to obtain information for a new store. It is used by the installation team to correctly set up the store-specific parameters. Fig. 9 describes the Pop-up Screen 9.

Collection of data for the main office is found in Pop-up Screen 10. Data is placed in a store's outbox, and can then be transferred in three ways. These include: (1) remote computer can

dial in and retrieve file from outbox; (2) transfer information to a server automatically using PC-anywhere script; and/or (3) copied to floppy disk and mailed to central site. Fig. 10 illustrates the Pop-up Screen 10.

5

Pop-up Screen 11 copies data from other stores. It can accept data in two ways. These include: (1) update using floppy supply by the main office; or (2) use of PC/Anywhere script to retrieve update file from main office outbox. Fig. 11 illustrates the Pop-up Screen 11.

10

Pop-up Screen 12 allows selection of a colour lipstick family. The customer advisor can either enter a specific lipstick number, or choose a colour family, then choose a colour from the family.

15 The active colour palette will consist of individual palettes that contain that lipstick. The advisor can also enter a specific look (can be either from a previous visit or any of the available looks in the palette). Fig. 12 describes the pop-up Screen 12.

20

Pop-up Screen 13 allows selection of lipstick from a colour family (as selected from Pop-up Screen 12). If the lipstick is also in the palette recommendation based on skin tone, the colour is put first in the list, and (expert fit) is added to the name. Fig. 13 describes the Pop-up Screen 13.

25

Pop-up 14 shows product selections (treatments in cosmetic colours) made during the present session. Product selections can be made during colour viewing (Screen 6), treatment/product options (Overlay 24) or Recommended Foundation (Pop-up Screen 20).

30 There also is a display of recommended looks. Fig. 14 describes the Pop-up Screen 14.

Overlay Screen 15 is used to provide a snapshot of the type of customer. For detail purchase history, Overlay 7 provides the

purchase information. Included in this screen are key purchase properties, group by type, over the past twelve months. It is automatically displayed for each customer. Fig. 15 lists the Overlay Screen 15.

5

Pop-up Screen 16 is a probe for calibration/routine and for messages to calibrate probe. Fig. 16 details the Pop-up Screens 16-19.

10

Pop-up Screen 20 is used to recommend the best foundation product combination based on skin colour and product preferences. Fig. 17 details the Pop-up Screen 20.

15

Pop-up Screen 21 is an advanced data management module. This is used by the main office. Fig. 18 details the Pop-up Screen 21.

Pop-up Screen 22 relates to language selection. Fig. 19 details Pop-up Screen 22.

20

Pop-up Screen 23 is used to locate and activate a client. If this is a new client, the 'new' button is clicked to create the new client file. Fig. 20 details Pop-up Screen 23.

Screen 24 details treatment/colour/fragrance options showing all the option products. Fig. 21 details Screen 24.

25

Overlay 25 focuses on skin colour analysis allowing selection of shade and tone. Fig. 22 details the Overlay 25.

30 The foregoing description illustrates selected embodiments of the present invention. In light thereof variations and modifications will be suggested to one skilled in the art, all of which are within the scope of this invention.

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CLAIMS:

1. A method for selecting a facial colour cosmetic scheme, the method comprising:

5 (i) providing a computer module including a colour monitor screen and a spectrophotometer;  
(ii) measuring a customer's facial colour with the spectrophotometer;

10 (iii) transmitting information on the measured facial colour to the computer module for display of that colour on a model face generated on the monitor screen;

15 (iv) allowing the customer to select at least one area of the face to be coloured with a colour cosmetic product; and

(v) colouring the area of the model face with the selected colour.

2. The method according to claim 1 further comprising the steps of printing in colour on paper the displayed model face via a printer.

3. The method according to claim 1 or claim 2 wherein areas of the face to be coloured are those selected from the lips, eyelashes, eyelid, cheeks and combinations thereof.

4. The method according to any of the preceding claims wherein a program operated by the computer module stores information on a vendor's products which will achieve the selected colour when placed upon the selected area of the face.

5. A system for selecting a facial colour cosmetic scheme, the system comprising:

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(i) a computer module connected with a colour monitor screen;

(ii) a spectrophotometer for measuring skin colour;

5 (iii) a mechanism for transfer of facial colour data obtained from measurements with the spectrometer over to the computer module and transmission onto the monitor screen; and

10 (iv) an interactive program displayed on the monitor allowing a customer to select at least one colour for application to an area of a model face appearing on the monitor.

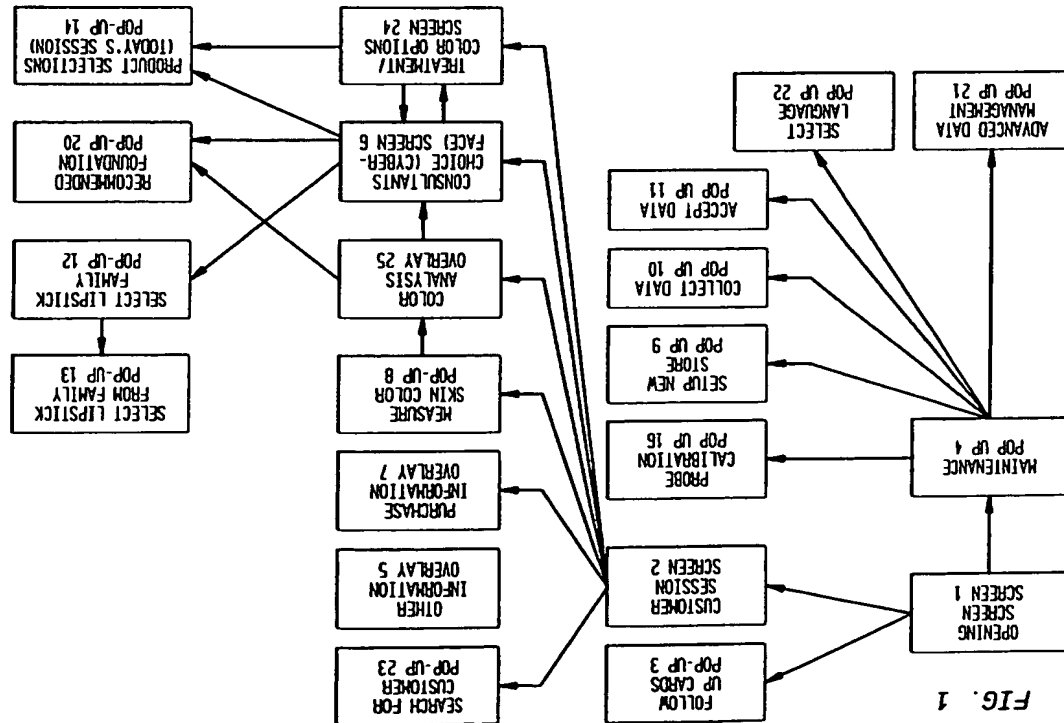


FIG. 1

FIG. 2

Beauty # [ ] Name: [ ] Customer # [ ] Verify Address and Cust Info [SEARCH] [NEXT] [PREVIOUS] [CANCEL] [CLOSE]

Personal Information  
Name [ ]  
Last Name [ ]  
Address [ ]  
City [ ] State [ ]  
Zip Code [ ] Date of Birth [ ] Day [ ] Month [ ]  
Profession [ ]  
Regular Client [ ] Responds to Promotions [ ] Responds to Mailing [ ]

Telephone [ ]

[OTHER INFORMATION]  
[PURCHASE HISTORY]  
[PURCHASE INFORMATION]  
[PRODUCT OPTIONS]  
[MEASURE SKIN COLOR]  
[COLOR ANALYSIS]  
[SHOW COLOR]

[Overlay area - not to scale]

FIG. 3

Customer follow up cards

With clients Information

Information On Selected Customer
List of Names

[ ] CALL COMPLETE  
[PRINT]  
[CLOSE]



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FIG. 4

MAINTENANCE

(CALIBRATE SKIN READER)  
(LANGUAGE)  
(SET UP NEW STORE)  
(COLLECT DATA FOR MAIN OFFICE)  
(ACCEPT DATA FROM LOCAL STORES)  
(ADVANCED DATA MANAGEMENT)  
(CLOSE)

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FIG. 6

(Customer Name)

Cyberface Screen  
With look #, and  
individual color name

(Date)

(ANOTHER LOOK)  
(SELECT LIPSTICK FAMILY)  
(CONSULTANT'S CHOICE)  
(PRODUCT OPTIONS)  
(FOUNDATION)

PRODUCT  
SELECTIONS

FIG. 5

OTHER INFORMATION

Skin Type	Age Profile	Beauty Habits	Fragrance	Other Brands
<input type="radio"/> Sensitive	15-20	Make-up	Cologne	Biotherm
	20-30	Cleanser/Toner	Perfume	Chanel
Normal to dry	30-40	Moisturizer	More than one	Clarins
Normal to oily	40-50	Special treat.	Bath line	Clinique
Dry	50+	Sunscreens		Dior
Oily		Body Products		Estee Lauder
				H. Rubenstein
				Lancaster
				Lancome
				Shiseido
				YSL
				Other

Special Preferences of Needs:  
Prefers fragrance free products

(Accept)

FIG. 7

Purchase Information

Today	1	JANE DOE
(1) Lipstick	125	Purchased
(1) Hydrolight	Bisque	Recommended
(1) Mousse	Bisque	Not Appropriate
		(Recommended) (Purchase) (Sample) (Not Appropriate) (Remove)
Date	905	JANE DOE
(2) Ceramide Complex		Sampled
Today		
Look 001	Plus	Recommended
Look 003	Reds	Recommended
Look 004	Naturals	Recommended

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FIG. 8

MEASURE SKIN WITH COLOR READER  
PRESS MEASURE TO RECORD COLOR FROM READER  
OR ENTER L, A, B VALUES FROM REMOTE

L\* A\* B\*  
L\* A\* B\*  
L\* A\* B\*

COLOR READER IDENTIFICATION: .....

Foundation Color Match: ..... [MEASURE]  
[ACCEPT]  
[CANCEL]

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FIG. 10

Collect Data for Main Office

Retrieve Monthly Data  
To be sent to Main Office

Select Month(s) and press Collect

Create Disk? Yes/No

Connect? Yes/No

January  
February  
March  
April  
May  
June

[COLLECT]  
[CANCEL]

FIG. 11

Accept Data from Server

Store Name Store Number City Number

Highlight to Select New Store

Available Stores

A B C D E F

Copy Data from Disk? Yes/No

[CONNECT]  
[ACCEPT]  
[CANCEL]

FIG. 9

Set up New Store

Store Name Store Number City Number

Highlight to Select New Store

Store

A B C D E F

[ACCEPT]  
[CANCEL]

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FIG. 12

Lipstick Color Families

Reds	Enter Number of Lipstick
Corals	
Pinks	
Naturals	
Plums	

Enter Number of Look

[ACCEPT]  
[CANCEL]

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FIG. 14

Today's Product Selections

(*) Product Type	Color	
<input type="radio"/> (1) Lipstick	121	Recommended
<input type="radio"/> (2) Hydro Light	Bisque	Purchased
<input type="radio"/> (1) Mousse	Bisque	Recommended
<input type="radio"/> Look 321	Reds	Recommended
<input type="radio"/> Look 496	Plums	Recommended

[Recommended]  
[Purchase]  
[Sample]  
[Not Appropriate]  
[Remove]  
[Print]  
[Accept]

FIG. 13

Lipstick Family: Reds

022	Hollywood Red (Expert Fit)
033	Lush Red
244	Vintage
255	Gypsy
375	Baroque Red

[ACCEPT]  
[CANCEL]

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FIG. 15

Purchase History			
Last purchase:	Date	Jane Doe	
Total purchases:	2 (Last)	12 (Past Year)	
SkinCare (3)			
⊗ (4) Ceramide Capsules	30 Jan	Purchased	
⊗ (3) Millennium Cream	30 Nov	Purchased	
⊗ (2) Perfection Cream	30 Nov	Purchased	
Color (2)			
⊗ (1) Flawless Finish (121)	30 Jan	Purchased	
⊗ (1) Exceptional Lipstick (906)	30 Dec	Purchased	
Fragrance (1)			
⊗ (1) Sunflowers	30 Oct	Purchased	
⊗ (1) Red Door	30 Sep	Purchased	
Fragrance (1)			
⊗ Red Door	30 Jan	Sampled	
⊗ Exceptional Lipstick	30 Jan	Recommended	
⊗ Perfection Cream	30 Jan	Non-Appropriate	

⊗ - Denotes product type icon

FIG. 16

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Pop-up 16	Probe Calibration	Probe Calibration Warning: Skin Reader not calibrated - Continue anyway? (Y or N)	Enter
Pop-up 17	Switch to Set Cal. Plate	Turn color reader off and Reader display should read 'Set Cal. Plate' Press (Enter) when ready! Cancel	Enter
Pop-up 18	Ready to Read Color Tile	Place Color Reader on the White Plate. Press (Enter) when ready!	Enter
Pop-up 19	Color Reading in Progress...	Press button on color reader twice slowly to record calibration color Stop! Probe calibrated. OK to continue?	Continue

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FIG. 17

Recommended Flawless Finish Foundation			
Product	Color		
Housse	234		[Recommend]
Hydrolight	123		[Purchase]
Pressed Powder	Medium 2		[Sample]
			[Accept]

FIG. 18

Update Doors	Yes	No	
Update Product List	Yes	No	
Export new Clients	Yes	No	[Import Update File] [Create Update File] [Print Returns]
Clean returns database	Yes	No	
Delete entries more than	3 months		
	6 months		
	9 months		
	12 months		
			[Connect] [Close]

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FIG. 19

Language Selection

[English]  
[Spanish]  
[French]

FIG. 20

Search for Customer

Name:	
List of Names	Information on Selected Customer

[ACCEPT]  
[NEW CUSTOMER]  
[CANCEL]

FIG. 21

Treatment/Color Product Options

Product	Color
Skin Illuminating Complex	
Millenium Night	
Millenium Energist	

[Treatent]  
[Color]  
[Fragrance]

[Recommend]  
[Purchase]  
[Sample]  
[Not appropriate]  
[What's New]

[ACCEPT]  
[CANCEL]

Advertisement Video

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FIG. 23

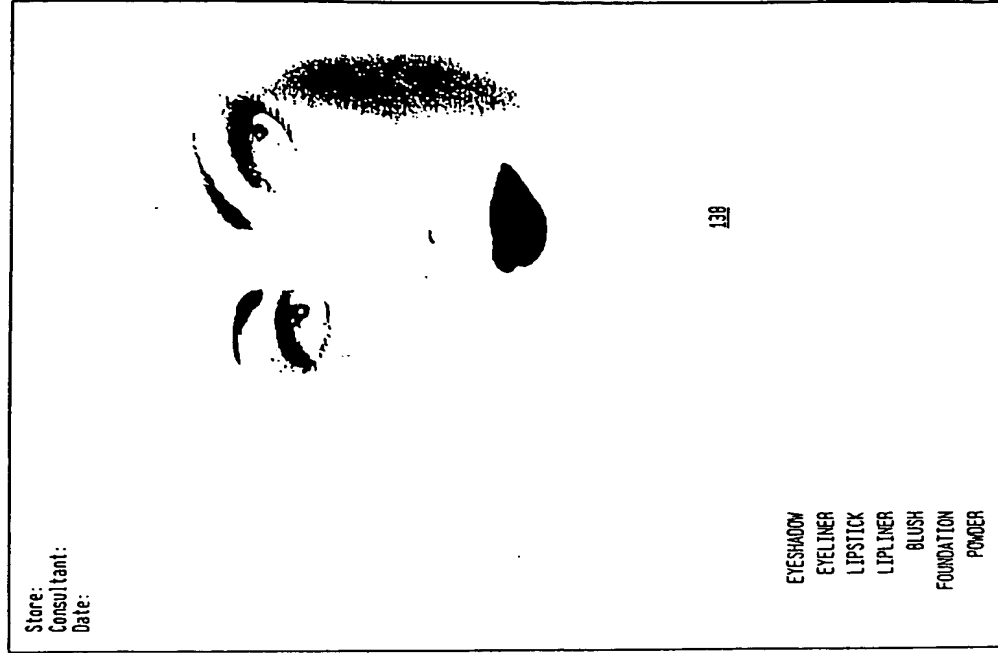
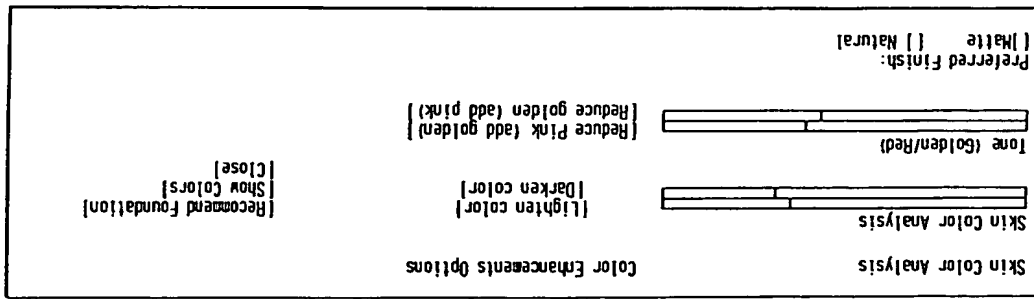


FIG. 22



# INTERNATIONAL SEARCH REPORT

Int. Appl. No. PCT/EP 00/05407	
A. CLASSIFICATION OF SUBJECT MATTER IPC 7 G06T11/00	
According to International Patent Classification (IPC) or to both national classification and IPC B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) IPC 7 G06T	
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched	
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) PAJ, EPO-Internal, WPI Data, IBN-TOB, INSPEC	
C. DOCUMENTS CONSIDERED TO BE RELEVANT	
Category	Citation of document, with indication, where appropriate, of the relevant passages
Y	EP 0 226 959 A (HORIYITA TSUKASA) 1 July 1987 (1987-07-01) page 2, line 26 - page 3, line 3 page 8, line 39 - line 56; figures 2, 26
Y	US 5 751 829 A (KUBO JUN C ET AL) 12 May 1998 (1998-05-12) abstract column 17, line 56 - column 18, line 2
A	PATENT ABSTRACTS OF JAPAN vol. 1999, no. 10 31 August 1999 (1999-08-31) & JP 11 143352 A (ONISHI NETSUGAKU KOGYOSHOKU KK), 28 May 1999 (1999-05-28) abstract
	--- -/--
D. PATENT FAMILIES	
X	Further documents are listed in the continuation of bar C.
X	Patent family members are listed in annex.
* Special categories of cited documents : "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document published on or after the international filing date "F" document which may throw doubt on priority claim(s) or which is used to establish the publication date of another document "O" document relating to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed	
Date of the actual completion of the international search	
28 September 2000	Date of mailing of the international search report
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentplan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 apo nl, Fax: (+31-70) 340-3018	Authorized officer Perez Molina, E

# INTERNATIONAL SEARCH REPORT

Int. Appl. No. PCT/EP 00/05407	
C. CONTINUATION DOCUMENTS CONSIDERED TO BE RELEVANT	
Category	Citation of document, with indication, where appropriate, of the relevant passages
A	US 5 495 338 A (COURTIOU ELIANE ET AL) 27 February 1996 (1996-02-27) column 2, line 37 - line 66
A	US 5 622 692 A (CASTRO JOHN R ET AL) 22 April 1997 (1997-04-22) cited in the application claims 1-3
A	US 5 478 238 A (BAUDET REGINE ET AL) 26 December 1995 (1995-12-26)
A	FR 2 728 982 A (ROBIN JEAN MARC) 5 July 1996 (1996-07-05)
A	WO 98 58351 A (WALLIN NICHOLAS JAMES ; BRITISH TELECOM (GB); MORTLOCK ANDREW NICH) 23 December 1998 (1998-12-23)
	---
D. PATENT FAMILIES	
X	Further documents are listed in the continuation of bar C.
X	Patent family members are listed in annex.
* Special categories of cited documents : "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document published on or after the international filing date "F" document which may throw doubt on priority claim(s) or which is used to establish the publication date of another document "O" document relating to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed	
Date of the actual completion of the international search	
28 September 2000	Date of mailing of the international search report
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentplan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 apo nl, Fax: (+31-70) 340-3018	Authorized officer Perez Molina, E

# INTERNATIONAL SEARCH REPORT

Information on patent family members

Patent document cited in search report		Publication date	Patent family member(s)	International Application No.
EP 0226959 A		01-07-1987	JP 62144280 A CA 1261967 A	PCT/EP 00/05407
US 5751829 A		12-05-1998	NONE	
JP 11143352 A		28-05-1999	NONE	
US 5495338 A		27-02-1996	FR 2690822 A CA 2134985 A DE 69301129 D EP 0569291 A EP 0646339 A WO 9321794 A JP 7506504 T DE 69301129 T ES 2085734 T	12-11-1993 11-11-1993 08-02-1996 10-11-1993 05-04-1995 11-11-1993 20-07-1995 04-07-1996 01-06-1996
US 5622692 A		22-04-1997	AU 697347 B AU 7535794 A CA 2168558 A DE 69411924 D DE 69411924 T WO 9505892 A EP 0717657 A ES 2120065 T JP 9502022 T NZ 271658 A ZA 9406410 A	01-10-1998 21-03-1995 02-03-1995 27-08-1998 17-12-1998 02-03-1995 26-06-1996 16-10-1998 25-02-1997 24-11-1997 23-02-1996
US 5478238 A		26-12-1995	EP 0638261 A CA 2146134 A DE 69301239 D DE 69301239 T ES 2085741 T WO 9503727 A JP 2986214 B JP 8505078 T US 5797750 A	15-02-1995 09-02-1995 15-02-1996 14-08-1996 01-06-1996 09-02-1995 06-12-1999 04-06-1996 25-08-1998
FR 2728982 A		05-07-1996	AU 4452296 A WO 9621201 A	24-07-1996 11-07-1996
WO 9858351 A		23-12-1998	AU 8116498 A EP 0990224 A GB 2341070 A	04-01-1999 05-04-2000 01-03-2000